



## TODDLERS' NATURE, NURTURE AND THEIR ENGAGEMENT WITH SMART PHONES AND TABLETS

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### Abstract:

Children who are twenty-four months or less may be self-regulating when it comes to their engagement with digital devices because of their naturally short attention span. From a six-month observation of two children with parents who hold opposing views to early technology exposure (nurturing practices), in their digital and non-digital engagements, the researcher reveals that concerns about exposure of children below 18 months to digital devices needs to be given some more consideration in research. This observation was born out of an interest to find out plausible reasons for the American Academy of Pediatrics (AAP) recommendation that children below 18 months be prevented from exposure to all forms of screen media apart from participating in video calls (AAP, 2016). The study employed the qualitative research methods of observation and interviews since the aim of the study was to make meaning of AAP's recommendation from a natural and real-life environment in a microsystem where technology was readily available to these toddlers. Data from the study revealed that children at this age are naturally interested in exploring their environments regardless of nature, nurture and technology. They always longed-for opportunities to go out, engage in activities and interact with people or just admire nature and marvel at their ability to identify objects and materials in their environment. Parents' perspective on digital exposure was revealed as a moderating factor in the toddlers' use of technology. Though, temperament and attention span seemed to play noticeable roles in their level of interaction with people and objects involving digital or non-digital engagements. Alad loved to watch children's programs on smart phones. Ghan on the other hand was always quick to grab the phones or iPads and go for the nearest garbage bins with a wide grin on his face. This action by the Ghan could be interpreted to mean that he wanted to eliminate all distractions, and have you focus on him while he engaged in

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non-digital play. A form of digital play that he favored was dancing while music played from the digital devices. Though he did not like this activity to be prolonged.

**Keywords:** toddlers, nature, nurture, engagement, digital devices

## 1. Introduction

Technology of sorts are all around us today, from “built-in DVD players in minivans” to tablets and smart phone technologies which are mobile and practically stick with us wherever we go (Palfrey and Gasser, 2016). Studies have revealed that the more common digital technologies that children are exposed to at home are tablets and smart phones (Commonsense Media, 2017; Gutnick et al, 2011; Ofcom, 2014). Children as young as four months of age can look into mobiles while friends and relations of the family coo over them in a bid to communicate regardless of distance. Chloe in Harrison and Mc Tavish’s study was recorded to have begun ‘chatting’ with her grandparents as soon as she could sit by herself at four months. By the time, she was seven months she already owned her first tablet (Harrison & Mc Tavish, 2016). Apart from looking into screen media for short spans of time which is an aspect of nature based on the developmental milestones of toddlers, they would rather enjoy exploring in the real world of senses (see, touch, smell, taste). These young ones are naturally not programmed to sit still for long spans of time performing a single task on a gadget. This is so because toddlers have short attention spans which are likened to that of a bumblebee by Karp (2008) and because they are practically more prone to walk around or climb all over once they discover the functions of their legs. As always, it is pertinent to bear in mind that there are usually exceptions to every rule.

Generally, screen time recommendations are linked to evidence that reveals sedentary behavior and practices, which has been identified as being risks factors in child obesity and some other chronic diseases (Cooper et al, 2006; Mota et al, 2010). Due to these experts recommend a reduction of screen time to combat the worldwide obesity epidemic because screen time is revealed to affect energy intake and energy expenditure (Birch, Parker, & Burns, 2011; National Health and Medical Research Council, 2013).

Nature in the context of this study covered the temperament types and classification of children while nurture captured the parents’ views on and practices in exposing their young ones to digital devices as well as the children’s observable behaviors in the presence of their parents and alone with the researcher. So, this study chose a classification of temperament types by doctor Karp (2008). This was chosen because it was designed specifically to guide parents in understanding their toddlers and nurturing them into happy, respectful and cooperative children. It is common knowledge that children are as different as they come and so it will be grave injustice to compare your child to another child, all the same studies and publications abound on milestone guidelines to assist parents, child care specialists, professionals and pediatricians etc. on what to look out for in their young ones as they grow and develop.

## **2. Statement of the Problem**

Studies on children under the age of three using computerlike devices are limited (Brown & Smolenaers, 2016; Hourcade et.al, 2015; Marsh et.al., 2016; Palaiologou, 2016) yet the phenomenon is now common place in most developed countries. The availability of limited studies can logically be linked to the fact that interaction of children with these devices is a new phenomenon which is less than a decade old. It is a phenomenon that came into existence after the proliferation within homes of smart phones and tablets. These newest models of the computer provide the youngest children with easier accessibility because of their touch screen effect and interactive interfaces (Hourcade et.al, 2015; Arnott, 2017).

According to Brown and Smolenaers (2016), there is a gap in the studies on young children's exposure to screen devices. Toddlers who are less than two years of age are understudied (Hourcade et.al, 2015, Marsh et al., 2016; Palaiologou, 2016) even though the AAP also has screen time recommendations for this age group. A limited amount of data has been collected on how kids interact with technology, but the interpretation of these data sets is still problematic (Kirkorian in The Daily Beast, 2018).

### **2.1 Objectives of the Study**

As an ardent observer of children, the researcher saw this gap as an opportunity to investigate how nature and nurture represented by temperament and parental perceptions and practices play keys roles in toddlers use of technology and if there really need be cause for alarm with regards to AAP's 2016 recommendation for children under the age of two. Hopefully, the findings from this study will also assist parents to check their toddlers' engagement with digital and non-digital activities and be sure that their child is still maximizing the learning through play opportunity that the early childhood phase is known for.

### **2.2 Developmental Milestones of toddlers from six months to two years linked to their possible Digital Capabilities (Centers for Disease Control and Prevention - CDC, 2018; Hourcade et al., 2015; O'Connor, 2017)**

A summary of the developmental milestones of children from six months to age two is provided in this work as there can be no better way of understanding children than through some developmental milestones. Based on the milestones, we can accurately determine the possible digital capabilities of our toddlers. These milestones are divided under the social/emotional, cognitive (covers language or communication, acquisition, learning, thinking, problem-solving) and the physical development categories. As was mentioned earlier these are only expected to serve as a checklist for parents, caregivers, experts and other interested parties. They do not always manifest a hundred percent following the same pattern for all children.

- **Six Months**
- ✓ **Social/Emotional Development**

Able to recognize familiar faces, play with others and respond to emotions. Often happy and love to look at self in a mirror.

✓ **Cognitive Development**

They can recognize their names, respond to sounds by making sounds, ability to make vowel sounds and use sounds to show joy and displeasure. Show curiosity about items around them, often reaching for them or bringing them to their mouth. The process of passing items from one hand to the other manifests at this stage.

✓ **Physical Development**

Can roll over from front to back and then vice versa. Develops the ability to rock back and forth, sometimes crawling backward as if in car reverse position, before moving forward. Begin to sit without support and can also support their weight while standing.

✓ **Interaction with Touchscreens**

Attracted by the sounds and images of touchscreens. May interact with them with their flattened hands and mouths.

▪ **Twelve Months**

✓ **Social/Emotional Development**

They are mostly shy or nervous around strangers and tend to cry when familiar faces leave especially their primary care giver(s). They show fear and can carry out simple actions as a cue of what they expect from you. E.g. Giving you a book when they want to be read to or a cup when they want something to drink. Can play simple games like "peek-a-boo".

✓ **Cognitive Development**

Respond to simple spoken requests, use simple gestures like waving "goodbye" and are beginning to use simple words as well as trying to repeat words that adults say. Explore objects by interacting with them in various physical ways, look at the right picture/object when it is named, copy gestures and can poke with the index finger.

✓ **Physical Development**

Can sit independently without assistance, get into a standing position and walks while holding onto things and people. May sometimes attempt a few steps or stand all by oneself without holding onto something or someone.

✓ **Interaction with Touchscreens**

Simple interactions with a touchscreen device such as opening an app by touching it or swiping through photos stored on the device.

In their study, Hourcade et al. (2015) found that most children between 12 and 17 months can understand and use basic apps.

▪ **Eighteen Months**

✓ **Social/Emotional Development**

Ability to hand objects to others as part of play, show affection to loved ones and use pointing gestures to bring attention to something, participate in pretend play and can scribble.

✓ **Cognitive Development**

They become more vocal with an ability to produce several single words. Favor the use of the word, "No".

✓ **Physical Development**

Ability to walk alone, drink from a cup and eat using a spoon.

✓ **Interaction with Touchscreens**

The use of focused pointing and random scribbling suggests more advanced interactions with touchscreens is possible, such as playing simple touch games e.g. Jigsaw puzzles, using drawing apps, turning touchscreen devices on and off.

▪ **Two years**

✓ **Social/Emotional Development**

Frequently copy behavior they see in parents and older children and typically enjoy playing with other children. Exhibits more independence and defiant behavior (insisting on doing that which he has been told not to do).

✓ **Cognitive Development**

Recognize the names of familiar people and objects, follow simple instructions. Speak using short sentences and repeat words. May be able to sort items by shape and color, play make-believe games, show hand preference and name items in a picture book. Can often make copies of straight lines and circles. Favorite word remains, "No".

✓ **Physical Development**

Ability to stand on tiptoe, kick a ball, run, climb onto and get down from chairs, bed, center and side tables etc. Aim and throw balls, make or copy straight lines and circles.

✓ **Interaction with Touchscreens**

Touchscreen use could be more sophisticated at this age when playing games, drawing and manipulating apps. Hourcade et al. (2015) found that 90% of children at this age displayed at least moderate ability to use touchscreens.

### 2.3 The Three Key Temperaments for Toddlers

For the classification of temperaments, the researcher referenced the pediatrician Harvey Karp based on his (2008) publication; *The Happiest Toddler on the Block*. In his book, he used clear and concise descriptions to classify the three common temperaments that toddlers often possess. These temperaments are the easy, shy and spirited types.

Toddlers with an Easy Temperament are often adaptable and flexible. They can be persuaded to go for their second-best options when the best options are not available. They accept change with little or no fuse. Those with a Shy Temperament are more cautious and great thinkers. They try to be analytical before making moves or acting but once they get a hang of something, they can repeat it countless times. As for the toddlers with Spirited Temperaments, they are full of energy and want to be everywhere from morning till evening. They are often the ones who parents and care givers refer to when they describe children that love fighting sleep.

## 2.4 Research Questions

1. What kinds of digital and non-digital activities are carried out by toddlers of differing temperaments?
2. What kinds of digital and non-digital activities are favored by toddlers of differing temperaments?

## 3. Methodology

This study employed the qualitative means of data collection by maximizing unstructured observations and semi-structured interviews. It was purposefully carried out through non-probability convenience sampling of an initial population of six families with differing characteristics. The researcher finally narrowed down to two families who had similar characteristics within the same geographical region. The observation was done over a six-month period in a natural setting. No manipulation of activities or environment was done as this was a case study carried out in a natural environment in order to preserve a relatively high level of ecological validity (Plowright, 2011).

### 3.1 Validity and Reliability

Creswell (2014) listed eight primary strategies for ensuring validity; sometimes referred to as trustworthiness, authenticity, and credibility (Creswell and Miller, 2000). These eight strategies include; Triangulation of data sources, member checking, rich and thick description as a means of presenting the findings, reflexivity, negative or discrepant information presentation, prolonged time in the field, peer debriefing and having an external auditor review the entire project (Creswell, 2014). Reliability in qualitative research on the other hand just emphasizes the consistency of the researchers' approach across different projects and different researchers (Gibbs, 2007 in Creswell 2014). A combination of two forms as well as two sources of data collection was done for triangulation purposes. Triangulation is encouraged for validity and reliability of the data collected for analysis.

### 3.2 Participants

Two toddlers and their parents. The toddlers to an extent had similar characteristics since they were both first born male sons to their monogamous families. They were aged 16 months and 13 months at the onset and 24 months and 21 months at the end of the study. For this study, they were given the pseudonyms Alad and Ghan. They were both born to families that are resident under the international students' status in a foreign country. From my observation, Ghan was born into a family with higher income when compared to Alad, so he has more toys and educational materials, while Alad on the other hand may not have that many resources but, has a full time stay at home mother. Ghan's mother and father are both full time students. Other notable differences show forth in the circumstances of their births. Alad was born in his home country and brought over to the foreign country when he was already 16 months and at the one-

word stage while Ghan was conceived and born in the foreign country living among international students right from the womb. Alad's parents are in support of early childhood exposure to technology while Ghan's parents are not.

#### **4. Findings and Discussion**

The analysis of the data will be done by first presenting information gathered from the interviews and the observation on the participants' nature with regards to their temperament types. After clearing out and classifying the children's temperament types then a presentation of the feedback from the aspects that cover digital and non-digital play will be presented with practical analysis linked to literature where possible.

##### **4.1 Temperaments of the Participants**

To be as accurate as possible in the temperament classification of the participants. The observation findings were compared to the parents' classification through the semi-structured interview protocol. The semi-structured interview protocol adopted and adapted the renowned Pediatrician Harvey's straight forward, clear and concise classification of toddlers' temperament into three groups; Easy, shy and spirited. This was done to guide parents in the classification of their children's temperament and guide the researcher in her observation and classification of the participants temperament types.

The children are revealed to be at opposite ends of the spectrum in terms of relating to the people around them. Alad was more attached to his parents and always seemed to be more comfortable and happier when they were within close range. Ghan on the other hand, could spend a considerable amount of time away from his parents without crying out for them so long as he was with familiar faces. Once you win Ghan's trust, he confidently, comfortably and conveniently relaxes with and around you. To win his trust one had to sincerely give him a lot of attention, play with him and encourage him to explore and have as much fun as he desires within parameters of safety. From a preliminary interview with Alad's father, he attributed his son's inability to feel as free as Ghan to the fact that he was not born in the foreign country and so was still getting accustomed to his new-found freedom to just go into anybody's space as Ghan does.

##### **4.2 Activity, Regularity, First Reaction to New People**

The interview protocol revealed that Alad's parents viewed him as an active child with a predictable eating and sleeping habit whose first reaction to new people was that of interest. My observation confirms this, the first time I met him he was all by himself in the corridor of the international students' dormitory and not knowing that a new kid was on the block, I mistook him for Ghan when he came peeping at me while I got some hot water from the laundry room. His interest came through to me as that of an easygoing young kid because he was not in the company of his parents, yet he stood still staring without fear at a total stranger who was calling him a strange, English name

“Darling” which he couldn’t comprehend due to language barrier. This initial observation of Alad was later proven wrong as he began to keep away from strangers whenever his parents were not within eye sight. He also became a bit unpredictable with regards to his reaction to familiar faces. Ghan’s parents on the other hand viewed him as a child who favored quiet play with unpredictable patterns and reluctance as his first response to new people. My observation revealed the same. Whenever he had an opportunity, he will get into any room of people who were familiar to him and play to his heart’s content. You seldom heard him crying or being fussy unless he was sick. He was always full of smiles and laughter around familiar faces.

#### **4.3 Handling of Unexpected Change, Intensity of Feelings, Usual Mood**

The interview and observation protocols revealed that both kids handled unexpected change reluctantly or unhappily and the intensity of their feelings may be either mild or spirited. Furthermore, Alad’s usual mood was presented as that of a happy or easy-going kid while Ghan’s was usually happy but easily thrown off balance according to the interview protocol. The observation protocol agreed to this to an extent. When they had non-digital sessions in my space, Alad was more willing to clean up while Ghan needed more persuasion and encouragement. They both loved to come into my space and follow the same process of unpacking the building blocks, then the miniature components of our mobile plastic kingdom, followed by the plastic and lightweight bowling set. When Ghan turned 18 months, he often wanted to play with flash cards and books. He identified as many of the images as he could recall, and we learned some new ones in the process. This change was fascinating, so I asked his mum how it came about. She revealed that his father allocated some time every day to teach him using the flashcards that I noticed that had been stuck to the wall of their space. Thus, even though, I was unaware of the new routine added by his father, he made me aware of this through his actions because he had not attained the linguistic competence for such communication. Whenever I would not permit them to follow the known pattern that they were used to, Alad would quietly leave my space and go home to his parents or go looking for another space to explore while Ghan would have a fit and look for items to mess up or break. He once took a miniature decorative wooden rhinoceros and threw it down with great force in response to the unusual change and my refusal to let him explore. After throwing it down, he looked up at me and kept repeating one of his then newly acquired vocabularies, “broken”.

#### **4.4 Persistence, Distractibility, Sensitivity to Noises/ Smells**

Alad was reported to be okay with not having his way, very focused and ultrasensitive. These tally with my observation because he often wanted to hold onto Ghan’s toys or take away toys from my space but once his mother or father called him to order he was quick to refrain although sometimes accompanied by a period of brief fussiness. His focus was evident from the way he concentrated on his game or food or sat still and observed while his mother or father did the cooking. Most of my observations with him were in the presence of his parents because of his ultrasensitive nature to people. Ghan

on the other hand was revealed to either give up or be tenacious, focused and ultrasensitive. The observation triangulated the interview report. He sometimes tried to mimic me in constructions with building blocks but after a few tries, he gave up and stuck to destroying my constructions. He always insisted that I construct while he grabbed them out of my hands with a wide grin and undid them. This process became one of our routines even before he could say, "broken". He started by leading me to the location of the building blocks and other toys which were neatly packed in Ziploc bags and within reach for them. After he's grabbing ability improved he started grabbing them himself and then asking me to, "open" to which I often responded, "say please", initially he kept insisting and repeating, "open". This can be explained away by the natural linguistic limitations of the one-word phase that most children go through at this age. Immediately he began producing two words, he would often tell me "xie xie - 谢谢" which I figured was the word that did the magic for him. 谢谢 means "thank you" and he is often told to say that whenever he receives a gift from people. He extended this to a way of requesting for whatever he wanted, regardless of if, it was an item he wanted or an action that he wanted you to carry out. Gradually, he got used to my requesting for a "please" because his "谢谢" magic was not working with me as I did not want to reinforce a semantically wrong concept on him. Ghan's ultra-sensitivity was clearly revealed when I took him to use my restroom which had the blue antibacterial tablet in the septic tank. He refused to urinate and kept repeating "dirty" even after I flushed to show him that it was not dirt. He adamantly refused to use the restroom and I had to take him back to his familiar space to use the restroom there. Another incident was when I took him along for a birthday party; he did not seem to appreciate the loud music and voices of strangers all around him. He only tried to relax when he was sitting on my laps and did not want to step out of this comfort zone to explore the environment like he did if there was no noise and no strange and new faces around.

#### **4.5 Linking Nature, Nurture and their Digital and Non-digital Play**

In summary, based on Karp's (2008) nine items, Ghan can be classified as a shy kid, though he has moments when he can be spirited while Alad is more of an easygoing child with moments of shyness. In subsequent paragraphs, an analysis will be made based on the feedback from the parents with a consideration of temperaments.

#### **4.6 Reaction When Given an Opportunity to Use a Smart Phone or Tablet**

Alad was reported by his father to use every opportunity he got to watch cartoons on digital devices while for Ghan, his father reported that his mood dictated his reaction to the devices. He more often rejects opportunities given to him to use these devices and when he shows some interest, it is limited to animated characters and appealing colors.

#### **4.7 Preference for Digital or Non-digital Materials**

Examples of digital materials were listed to include building blocks, toy cars and animals etc. while digital materials were limited to smart phones and tablet devices. Ghan's parents revealed that he preferred non-digital devices, and this aligned with my

observation records. He always looked for the nearest trash can to dispose of my mobile devices whenever he laid his hands on them. The only times he accommodated mobile devices were whenever we were listening to and trying activities that required Total Physical Response (TPR). Alad on the other hand was reported to show a preference for digital devices to non-digital devices and my observation report corroborates this. He did not hesitate to reach out and grab the mobile phone of visitors in a bid to explore. This was revealed by his father's response, "He likes phone and computer more than the toy cars, building blocks etc. He is always busy on the phone".

#### **4.8 Toddlers' Reaction to Parents' Use of Digital Devices**

Ghan's parents reported, "He likes to grab the phone and throw it away to get full attention...". This revelation tallies with my observation because he does the exact same thing whenever I receive a call or try to use my digital devices in his presence. Sometimes, he does not wait for me to receive a call but picks that phone and heads straight for the trash can with a wide grin on his face. Alad on the other hand is reported to react with crying or refocusing on some other activities. These behaviors can be linked to their different temperaments as well as nurture. The meaning that can be inferred here with regards to the early exposure to devices is that, at this age they can do with or without the devices and it is not a huge deal to them. Ghan does not favor the use of devices and Alad who does, still moves on to another activity whenever his parents place restrictions.

#### **4.9 Parents View On Children's Use of Digital Devices at Toddlerhood**

Ghan's parents are not in support of toddlers' use of technology. This is evident in their response which was that "It is entirely not good for toddlers". Alad's parents on the other hand do not hesitate to keep him occupied with the phone since he pleads for this at times and "letting him use it makes him happy" as they reported. These feedbacks from the parents could be viewed as contributing factors to their children's reaction and interest in the usage of digital devices. Ghan's parents have a strict schedule for his exposure to these devices even though they are not his favorite. Alad's parents on the other hand are more lenient in their restrictions. The views and conditions of both parents notwithstanding, the two toddlers with differing temperaments are still self-regulated because of their short attention spans and their love for exploring with nature outdoors.

#### **4.10 Toddlers' Favorite Activities on Digital Devices**

Ghan's parent reported that he uses "the cartoon or animation apps once a day before sleeping". Alad is revealed to like "noise and listening to songs", watching cartoon and on occasions he uses his father's power bank in role play as a phone. This last action shows some creativity on his side as he uses non-digital objects to mimic the functions of digital devices. There's still another similarity within these two kids' usage of digital devices as both are participating more in passive usage of these devices than active usage. Considering the attention span limitations, there may be nothing to worry about

at this age but, as they grow older, it is best to involve them in active usage of these devices. Active usage is recorded to facilitate the development of advanced cognitive skills while passive usage only aids literacy, in the aspect of linguistic competence (Commonsense Media, 2017).

#### **4.11 Toddlers' Preferred Non-Digital Activities**

When it came to this aspect both Alad and Ghan showed a preference for outdoor activities. One of Ghan's first two-word combination was unsurprising the term, "outside". According to his parent's response and the observation data, he likes to explore everything within reach. He also likes to maintain a good relationship with familiar faces (family members, parent's friends, colleagues and neighbors) and sometimes strangers. He socializes with other toddlers of the same age and according to his parents, "tries to grab their attention by any means" possible. From my observation, Ghan loved going outside and at 20 months, whenever he was outside, he excitedly identified as many items and people by commonly used adult terminologies. All male adults were referred to as, "uncle" while "Aunty" was used for all female adults and "baby" for all children who looked as young as he was. Within the building, they were both attracted to anything with wheels, balls, walking and climbing all over the place, opening and closing doors, cabinets, desk drawers etc. The similarities in their non-digital activities at this stage showed that of children who were eager to explore and discover as much as they could about the world around them. This means that they were always up, and about so sedentary behavior and practices are not attributes that can be used to describe these toddlers meaning that the screen time recommendations are rather invalid in these scenarios. As mentioned earlier the evidence underpinning screen time recommendations is linked to sedentary behavior (Birch, Parker, & Burns, 2011; Cooper et al, 2006; Mota et al, 2010; National Health and Medical Research Council, 2013). This study reveals that these toddlers are anything but sedentary since they are limited by their attention span and show a preference for mobility while exploring nature.

### **5. Summary**

At the beginning of this study, the assumption was presented that children who are twenty-four months or less may be self-regulating when it comes to their engagement with digital devices because of their short attention span. This assumption was confirmed from the six-month observation of two children with parents who hold opposing views to early technology exposure, in their digital and non-digital engagements. As mentioned in the findings section, Alad's parents were open to allowing him access to digital devices whenever possible while Ghan's parents limited his exposure to once a day. One can speculate therefore that the parent's stand on technology use by toddlers contributed greatly to the children's reaction to technology though children's temperament played the key role. So, the role of parents or nurture, if

put more aptly in moderating the use of these digital devices and maximizing its affordances is essential.

Nature and attention span can be manipulated to assist parents since both toddlers of differing temperaments revealed that the outdoors and socializing with familiar faces was a shared trait. During the observation, the children revealed similarities in the activities that interested them. They were both attracted to anything with wheels. They often did the same activity though there were often clashes as they did not like to share but they were open participating in similar activities under adult supervision. With reference to digital activities, there were also similarities as both kids shared a passion for cartoons. The difference only stemmed from the way they did it. Alad had more freedom to watch cartoons on his parent's devices while Ghan only did this once a day under his parent's supervision. Digital devices were certainly not a favorite of Ghan since most often his reaction to them, was to put them in the trash can. Alad on the other had crying spells just to have access to smart phones. Nevertheless, just like Ghan, Alad still preferred the outdoors to his digital devices. This agrees with Karp (2008) that children are like little "Tarzans" and just appreciate every opportunity they can get to enjoy freedom of exploration in nature.

The participants in this study were few so the findings cannot be generalized so the researcher recommends that concerns about exposure of children below 18 months to digital devices needs to be given some more consideration in research though this study shows that there is really no cause for concern. No cause for concern came about because of the findings that toddlers in this study regardless of their like or dislike for digital devices still showed a preference for nature and the outdoors. The iPad will be a decade old in two years while smart phones are a little older. The impact of these devices needs to be continuously studied as they become more accessible to all. Digital devices have come to stay so, the earlier we know how, when, where, whys of its usage the better for the future generation.

The American Academy of Pediatrics (AAP) recommendation that children below 18 months be prevented from exposure to all forms of screen media apart from participating in video calls (AAP, 2016) may or may not be the solution. Teaching early self-regulation within the nurture process in addition to encouraging the natural behavioral patterns (for example outdoor play as chosen by both Alad and Ghan) may be the most reliable developmentally appropriate practice (DAP) in this scenario. The study employed the qualitative research methods of observation and interviews since the aim of the study was to make meaning of AAP's recommendation from a natural and real-life environment in a microsystem where technology was readily available to these toddlers. In summary, data from the study revealed that children at this age are naturally more interested in exploring their environments, by going outdoors. They preferred opportunities for outdoor interaction with nature, engaging in activities and interacting with people or just admiring nature and marveling at their ability to identify objects and materials in their environment. Parents' perspective on digital exposure as well as their parenting style was revealed as a moderating factor in the toddlers' use of technology. Though, temperament and attention span seemed to play key roles in their

level of interaction with people and objects involving digital or non-digital engagements.

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